IAP12 Rec'd PCT/PTO 18 MAY 2006

2117pct.ST25 SEQUENCE LISTING

<110>	INS	TITUT DE LA	RECHERCHE	POUR LE DEVI	ELOPPEMENT	(IRD)	
<120>	NOU	VEAUX MOYENS	S POUR LA PI	REVENTION D	ES LEISHMAN	IOSES	
<130>	CP/	вв 61158-21	17				
<140>	PCT,	/FR04/02955					
<141>	200	4-11-19					
<150>	FR (03 1 3 555					
<151>	200	3-11-19					
<150>	FR (04 07 010					
<151>	2004	4-06-25					
<160>	12						
<170>	Pate	entIn versio	on 3.1				
<210>	1						
<211>	2526	5					
<212>	DNA		•				
<213>	Leis	shmania amaz	zonensis				
<400>	1						
					gctggcggcg		60
					ggcgcgtgct		120
					gctgcaggcg		180
					ctgctcgtgg		240
					ggattatacc		300
					cacggaactg		360
					gagctcgctg		420
tatcact	gtg	catcgaaaag	tctgagaagg	tcaccggcac Page 1	gctgcctgcc	cagtggagct	480

cgatgacgtc	gctggacaac	cttaacctgc	acgacacggc	ggtctccggc	acgctgcctg	540
cccagtggag	ctcgatgaag	cagctgaccg	ttctggatct	ggagggcact	aaggtgtccg	600
gcacgctgcc	gtccgagtgg	agtgggatgg	cgaaggccga	ggccgtgcag	ctggagaact	660
gcggtctgtc	cgggagtctg	ccccctcgt	ggtctgcgat	gccgaagctg	cgtatcgtct	720
cactgagcgg	caaccacttc	tgcgggtgcg	tgcccgactc	gtggagggag	aaggaccgcc	780
tcgatgtgac	catcgaggaa	tggcacatgg	gcgaggactg	caagcttgct	aacgcctgcc	840
gcccgactgc	tgctccggga	acgaccacga	ctaacccgcc	caccaccacc	ggcaccccag	900
cagcctcctc	tactccttct	ccagggtcgg	ggtgcgaggt	ggatgggtgt	gaggtgtgcg	960
agggggactc	cgctgcgcgg	tgcgccaggt	gccgtgaggg	ctactccctg	acggacgaga	1020
agacgtgcct	ggcgaaccac	gatggcggcg	tggcggcggc	gtcgagcgga	gcggtggctg	1080
ccgctgctgt	gtgggcggct	gtgctgttga	gcgtggggct	ggtggcgtga	gggtgcggcg	1140
ggcacacgcg	cacgcgcaca	cgccgtcgtg	catcgcgtgt	gctttccgcc	gttgtggcgc	1200
ctgcacggat	gcacgggcat	gcggaggcgt	gcatgcgtgt	gcgcgtgcca	gctcttgtgt	1260
gtctctccgt	gtggccagca	gtcggcaccc	gcgccgatcg	aatgtgcgcg	cggcggcggt	1320
gtgtcgcctt	ggacagcgga	tgcgggcgcc	cgcccctcgc	cgtgtgccct	gcggtctgct	1380
gtgctgccgc	gcgagcgacg	tacggatgcg	ctgtccggcc	ctcttcgacg	gggctcgctt	1440
gcggtgctgt	gctctcgtgg	tctgtgccgg	tgctgccctg	gcggggtgag	agctggcggg	1500
ggcgtgggtg	cgcgcgcggc	agctctccgc	tgcgttgagg	gcggcctgcc	cctgcgtccg	1560
cgcaccgtcg	cgctctcctc	gacgccactg	cgcgcgcttg	ttggcttgct	ttgctctgtc	1620
gtgcgcactc	tctcttattt	tccgtttcat	tcgcctgtat	tctcttctcc	caccgcactg	1680
cggcctcgtc	accgcggccg	tgcggtgcgc	aggcgggtga	tgtgccgttg	tgcccccct	1740
ttcatggcgc	gctgggccga	tcgccctctt	gcctccctcc	tcccctccc	cctcccgccg	1800
gtcctgtcaa	ttgtatatcc	gtggacctta	tcttcgtact	gcctccgcgc	ctcttccgta	1860
aagcttcgtt	ggcgtgtgcc	gcccccgga	cgtcagcgcc	gctgtgctcg	catgctcacg	1920
gtgcgtcccc	gtgcgtgggc	gtgcacgtaa	ggacatgtat	atatgtatgt	gtatgtatat	1980
gagtatgtat	atatgtacgg	ttatatatag	gaatttgtgt	atgttgaggt	gtatgcatgt	2040
gcgtgcgtat	attagtgtgt	gcgagcacgc	gtgttgcgcc	acgctctgct	gcccgcctcc	2100
gctgtgcgtg	tcactcgctg	tgggcgcggt	ggcgggtggc	gccgggtggt	ggccgtgcgg	2160
cgggcggggg	ctcctctgtg	tttctctatt	tctctgttcc	ctgttgacct	caaaaaaaaa	2220
aaaaaaaaa	aaagtgcacg	taaggacatg	tatatatgta	tgtgtatgta	tatgagtatg	2280
tatatatgta	cggttatata	taggaatttg	tgtatgttga	ggtgtatgca	tgtgcgtgcg	2340
tatattagtg	tgtgcgagca	cgcgtgttgc	gccacgctct	gctgcccgcc	tccgctgtgc	2400
gtgtcactcg	ctgtgggcgc	ggtggcgggt	ggcgccgggt	ggtggccgtg	cggcgggcgg	2460
gggctcctct	gtgtttctct	atttctctgt	tccctgttga Page 2	cctcaaaaaa	aaaaaaaaa	2520

aaaaaa	2526
<210> 2	
<211> 1401	
<212> DNA	
<213> Leishmania amazonensis	
<400> 2 cgtggacggg cagcgacttc tgctcgtgga agcacatcat ctgcgactcc cccggcgtcg	60
gcgtgtggat gggcgatgtg gattataccg gcacgctgcc ggagatgcct gcgagcgtcg	120
actacaagga cgtcatgatc acggaactga acttcagcgc aatgggccag gggctgagcg	180
ggacgctgcc cccctcatgg agctcgctga cgtccttgat atcactgtgc atcgaaaagt	240
ctgagaaggt caccggcacg ctgcctgccc agtggagctc gatgacgtcg ctggacaacc	300
ttaacctgca cgacacggcg gtctccggca cgctgcctgc ccagtggagc tcgatgaagc	360
agctgaccgt, tctggatctg gagggcacta aggtgtccgg cacgctgccg tccgagtgga	420
gtgggatggc gaaggccgag gccgtgcagc tggagaactg cggtctgtcc gggagtctgc	480
ccccctcgtg gtctgcgatg ccgaagctgc gtatcgtctc actgagcggc aaccacttct	540
gcgggtgcgt gcccgactcg tggagggaga aggaccgcct cgatgtgacc atcgaggaat	600
ggcacatggg cgaggactgc aagcttgcta acgcctgccg cccgactgct gctccgggaa	660
cgaccacgac taacccgccc accaccaccg gcaccccagc agcctcctct actccttctc	720
cagggtcggg gtgcgaggtg gatgggtgtg aggtgtgcga gggggactcc gctgcgcggt	780
gcgccaggtg ccgtgagggc tactccctga cggacgagaa gacgtgcgtg gcgaaccacg	840
atggcggcgt ggcggcggcg tcgagcggag cggtggctgc cgctgctgtg tgggcggctg	900
tgctgttgag cgtggggctg gtggcgtgag ggtgcggcgg gcccctcttc tctgtggtgc	960
ccctggtgcc tgccctcgcc cccggcacgg cgtcgtcgct gccctctctc accccacca	1020
gccgacgggg agaccgacag ccacacgcgc acgcgcacac gccgtcgtgc atcgcgtgtg	1080
cgtgcactta aggacatgta tatatgtatg tgtatgtata tgagtatgta tatatgtccg	1140
gttatatata ggaatttgtg tatgttgagg tgtatgcatg tgcgtgcgta tattagtctg	1200
tgcgagcacg cgtgttgcgc cacgctttgc tgcccgcctc cgctgtgcgt gtccctccc	1260
gtgggcgcgc tgccgggtgg ccccgggtgg tgcccgtgcg gcgggcgg	1320
gtttctctat ttctctgttc cctgttgacc ccaaaaaaaa aaaaaaaaa aaaaaaaaa	1380
aaaaaaaaaa aaaaaaaaaa a	1401
annual and	T-01
<210> 3	

<211> 1684

<212> DNA

≰213> Leishmania amazonensis

<400> 3						
	cgacttctgc	tcgtggaagc	acatcatctg	cgactccccc	ggcgtcggcg	60
tgtggatggg	cgatgtggat	tataccggca	cgctgccgga	gatgcctgcg	agcgtcgact	120
acaaggacgt	catgatcatg	gcactggact	tcggcgcaat	gggccaggga	ctgagcggga	180
cgctgccccc	ctcatggagc	tcgctgacgt	ccttgatgtc	actgtggatc	gaaaagtctg	240
agaaggtcac	cggcacgctg	cctacccagt	ggagctcgat	gaagcagctg	acccttctgc	300
atctgaaggg	cactaaggtg	tccggcacgc	tgccgcccga	gtggagtggg	atgacgtcgc	360
tggacgacct	taacctgcac	gacacggcgg	tctccggcac	gctgcctgcc	cagtggagct	420
cgatgaagca	gctgatcgat	ctggatctgg	agggcactaa	ggtgtccggc	acgctgccgc	480
ccgagtggag	tgggatggcg	aaggccgagg	ccctgcagct	gaagtactgc	gatctgtccg	540
ggagtctgcc	ccctcgtgg	tcttcgatgc	agaagctgcg	tatcgtctca	ctgagcggca	600
accacttctg	cgggtgcgtg	cccgactcgt	ggagggagaa	ggaccgcctc	gatgtgacca	660
tcgaggaatg	gcacatgggc	gaggactgca	agcttgctaa	cgcctgccgc	ccgactgctg	720
ctccgggaac	gaccacgact	aacccgccca	ccaccaccgg	caccccagca	gcctcctcta	780
ctccttctcc	agggtcgggg	tgcgaggtgg	atgggtgtga	ggtgtgcgag	ggggactccg	840
ctgcgcggtg	cgccaggtgc	cgtgagggct	actccctgac	ggacgagaag	acgtgcctgg	900
cgaaccacga	tggcggcgtg	gcggcggcgt	cgagcggagc	ggtggctgcg	gctgctgtgt	960
gggcggctgt	gctgttgagc	gtggggctgg	tggcgtgagg	gtgcggcggc	cccctcttct	1020
ctgtggtgcc	cctggtgcct	gccctcgccc	ccagcacggc	gtcgtcgctg	ccctctcacc	1080
cccaccagcc	gaaggggaga	ccgacagcca	cacgcacacg	cgcacgcgcc	gtcgtgcatc	1140
gcgtgtgctt	tccgccgttg	tggcgcctgc	gcggatgcac	gggcatgcgg	aggcgtgcat	1200
gcgtgtgcgc	gtgccagctc	ttgtgtgtct	ctccgtgtgg	ccagcagtcg	gcacccgcgc	1260
cgatcgaatg	tgcgcgcggc	ggcggtgtgt	cgccttggac	agcggatgcg	gcgcccgccc	1320
ctcgccgtgt	gccctgcggt	ctgctgtgct	gccgcgcgag	cgacgtacgg	agtgcatgta	1380
aggacatgta	tatatgtatg	tgtaggtata	tgagtatgta	tatatgtacg	gttatatata	1440
ggaatttgtg	tatgttgagg	tgtatgcatg	tgcgtgcgta	tattagtctg	tgcgagcacg	1500
cgtgttgcgc	cacgctttgc	tgcccgcctc	tgctgtgcgt	gtcactccct	gtgggcgcgc	1560
tggcgggtgg	cgccgggtgg	tggccgtgcg	gcgggcgggg	gctcctctgt	gtttctctat	1620
ttctctgttc	cctgttgacc	tcaagaaaaa	aaaaaaaaa	aaaaaaaaa	aaaaaaaaa	1680
aaaa						1684

<211> 1404

<212> DNA

<213> Leishmania amazonensis

<400> 4				_		
	gatgggcgat	gtggattata	ccggcacgct	gccggagatg	cctgcgagcg	60
tcgactacaa	ggacgtcatg	atcacggaac	tgaacttcgg	cgcaatgggc	cagggactga	120
gcgggacgct	gccccctca	tggagctcga	tgaagcagct	gatcgatctg	gatctggagg	180
gcactaaggt	gtccggcacg	ctgccgcccg	agtggagtgg	gatggcgaag	gccgaggccc	240
tgcagctgaa	gtactgcgat	ctgtccggga	gtctgcccc	ctcgtggtct	tcgatgcaga	300
agctgcgtat	cgtctcactg	agcggcaacc	acttctgcgg	gtgcgtgccc	gactcgtgga	360
gggagaagga	ccgcctcgat	gtgaccatcg	aggaatggca	catgggcgag	gactgcaagc	420
ttgctaacgc	ctgccgcccg	actgctgctc	cgggaacgac	cacgactaac	ccgcccacca	480
ccaccggcac	cccagcagcc	tcctctactc	cttctccagg	gtcggggtgc	gaggtggatg	540
ggtgtgaggt	gtgcgagggg	gactccgctg	cgcggtgcgc	caggtgccgt	gagggctact	600
ccctgacgga	cgagaagacg	tgcctggcga	accacgatgg	cggcgtggcg	gcggcgtcaa	660
gcggagcggt	ggctgcggct	gctgtgtggg	cggctgtgct	gttgagcgtg	gggctggtgg	720
cgtgagggtg	cggcgggccc	ctcttctctg	tggtgcccct	ggtgcctgcc	ctcgccccg	780
gcacggcgtc	gtcgctgccc	tctctcaccc	ccaccagccg	acggggagac	cgacagccac	840
acgcgcacgc	gcacacgccg	tcgtgcatcg	cgtgtgcttt	ccgccgttgt	ggcgcctgca	900
cggatgcacg	ggcatgcgga	ggcgtgcatg	cgtgtgcgcg	tgccagctct	tgtgtgtctc	960
tccgtgtggc	cagcagtcgg	cacccgcgcc	gatcgaatgt	gcgcgcggcg	gcggtgtgtc	1020
gccttggaca	gcggatgctg	gcgcccgccc	ctcgcgtgtg	cctcggtctg	cgtgtcgtgg	1080
ccgcgcgagc	gacgtacgga	gtgcgctgtg	tgcacttaag	gacatgtata	tatgtatgtg	1140
tatgtatatg	agtatgtata	tatgtacggt	tatatatagg	aatttgtgta	tgttgaggtg	1200
tatgcatgtg	cgtgcgtata	ttagtctgtg	cgagcacgcg	tgttgcgcca	cgctttgctg	1260
cccgcctccg	ctgtgggtgt	cactcgctgt	gggcccggtg	gcgggtggcc	ccgggtggtg	1320
cccgttcggc	gggcgggggc	tcctctgtgt	ttctctattt	ctctgttccc	tgttgccctc	1380
caaaaaaaa	aaaaaaaaa	aaaa				1404

<210> 5

<211> 1501

<212> DNA

<213> Leishmania amazonensis

```
<400>
ccggcgtcgg Cgtgtggatg ggcgatgtgg attataccgg cacgctgccg gagatgcctg
                                                                 60
cgagcgtcga ctacaaggac gtcatgatca cggaactgaa cttcagcgca atgggccagg
                                                                 120
                                                                 180
ggctgagcgg gacgctgccc ccctcatgga gctcgctgac gtccttgata tcactgtgca
tcgaaaagtc tgagaaggtc accggcacgc tgcctgccca gtggagctcg atgacgtcgc
                                                                 240
                                                                 300
360
ggatgacgtc gctggacgac cttaacctgc acgacacggc ggtctccggc acgctgcctg
                                                                 420
cccagtggag ctcgatgaag cagctgatcg atctggatct ggagggcact aaggtgtccg
                                                                 480
gcacgctgcc gcccgagtgg agtgggatgg cgaaggccga ggccctgcag ctgaagtact
gcgatctgtc cgggagtctg ccccctcgt ggtcttcgat gcagaagctg cgtatcgtct
                                                                 540
                                                                 600
cactgagcgg caaccacttc tgcgggtgcg tgcccgactc gtggagggag aaggaccgcc
tcgatgtgac catcgaggaa tggcacatgg gcgaggactg caagcttgct aacgcctgcc
                                                                 660
                                                                720
gcccgactgc tgctccggga acgaccacga ctaacccgcc caccaccacc ggcaccccag
                                                                780
cagcctcctc tactccttct ccagggtcgg ggtgcgaggt ggatgggtgt gaggtgtgcg
agggggactc cgctgcgcgg tgcgccaggt gccgtgaggg ctactccctg acggacgaga
                                                                840
                                                                900
agacgtgcct ggcgaaccac gatggcggcg tggcggcggc gtcaagcgga gcggtggctg
                                                                 960
cggctgctgt gtgggcggct gtgctgttga gcgtggggct ggtggcgtga gggtgccgcc
                                                                1020
gccccctctt ctctgtggtg cccctggtgc ctgccctcgc ccccagcacg gggtcgtcgc
                                                                1080
tgccctctca cccccaccag ccgaagggga gaccgacagc cacacgcaca cgcgcacgcg
ccgtcgtgca tcgcgtgtgc tttccgccgt tgtggcgcct gcgcggatgc acgggcatgc
                                                               1140
ggaggcgtgc atgcgtgtgc gcgtgccaac tcttgtgtgt ctctccgtgt ggccagcagt
                                                               1200
                                                               1260
cggcacccgt gcacgtaagg acatgtatat atgtatgtgt aggtatatga gtatgtatat
atgtacggtt atatatagga atttgtgtat gttgaggtgt atgcatgtgc gtgcgtatat
                                                               1320
                                                               1380
tagtctgtgc gagcacgcgt gttgcgccac gctctgctgc ccgcctctgc tgtgcgtgtc
actcgctgtg ggcgcgctgg cgggtggcgc cgggtggtgg ccgtgcggcg ggcgggggct
                                                               1440
1500
                                                               1501
```

<210> 6

<211> 371

<212> PRT

<213> Leishmania amazonensis

<400> 6

Met Ala Gln Cys Val Arg Arg Leu Val Leu Ala Ala Pro Leu Ala Ala 1 5 10 15

Yal Val Ala Leu Leu Cys Thr Ser Ser Ala Pro Val Ala Arg Ala 20 25 30 Ala Gly Thr Ser Asp Phe Thr Glu Ala Gln Gln Thr Asn Thr Leu Thr 35 40 45 Val Leu Gln Ala Phe Ala Arg Ala Ile Pro Ala Leu Gly Asp Thr Trp 50 60 Thr Gly Ser Asp Phe Cys Ser Trp Lys His Ile Ile Cys Asp Ser Pro 65 70 75 80 Gly Val Gly Val Trp Met Gly Asp Val Asp Tyr Thr Gly Thr Leu Pro
85 90 95 Glu Met Pro Ala Ser Val Asp Tyr Lys Asp Val Met Ile Thr Glu Leu 100 105 110 Asn Phe Ser Ala Met Gly Gln Gly Leu Ser Gly Thr Leu Pro Pro Ser 115 120 125 Trp Ser Ser Leu Thr Ser Leu Ile Ser Leu Cys Ile Glu Lys Ser Glu 130 135 140 Lys Val Thr Gly Thr Leu Pro Ala Gln Trp Ser Ser Met Thr Ser Leu 145 150 155 160 Asp Asn Leu Asn Leu His Asp Thr Ala Val Ser Gly Thr Leu Pro Ala 165 170 175 Gln Trp Ser Ser Met Lys Gln Leu Thr Val Leu Asp Leu Glu Gly Thr 180 185 190 Lys Val Ser Gly Thr Leu Pro Ser Glu Trp Ser Gly Met Ala Lys Ala 195 200 205 Glu Ala Val Gln Leu Glu Asn Cys Gly Leu Ser Gly Ser Leu Pro Pro 210 215 Ser Trp Ser Ala Met Pro Lys Leu Arg Ile Val Ser Leu Ser Gly Asn 225 230 235 His Phe Cys Gly Cys Val Pro Asp Ser Trp Arg Glu Lys Asp Arg Leu 245 250 255 Asp Val Thr Ile Glu Glu Trp His Met Gly Glu Asp Cys Lys Leu Ala 260 265 270 Asn Ala Cys Arg Pro Thr Ala Ala Pro Gly Thr Thr Thr Asn Pro 275 280 285 Page 7

Pro Thr Thr Gly Thr Pro Ala Ala Ser Ser Thr Pro Ser Pro Gly 290 295 300

Ser Gly Cys Glu Val Asp Gly Cys Glu Val Cys Glu Gly Asp Ser Ala 305 310 315 320

Ala Arg Cys Ala Arg Cys Arg Glu Gly Tyr Ser Leu Thr Asp Glu Lys 325 330 335

Thr Cys Leu Ala Asn His Asp Gly Gly Val Ala Ala Ala Ser Ser Gly 340 345 350

Ala Val Ala Ala Ala Val Trp Ala Ala Val Leu Leu Ser Val Gly 355 360

Leu Val Ala 370

<210> 7

<211> 286

<212> PRT

<213> Leishmania amazonensis

<400> 7

Met Gly Asp Val Asp Tyr Thr Gly Thr Leu Pro Glu Met Pro Ala Ser 1 10 15

Val Asp Tyr Lys Asp Val Met Ile Thr Glu Leu Asn Phe Ser Ala Met 20 25 30

Gly Gln Gly Leu Ser Gly Thr Leu Pro Pro Ser Trp Ser Ser Leu Thr 35 40 45

Ser Leu Ile Ser Leu Cys Ile Glu Lys Ser Glu Lys Val Thr Gly Thr 50 55 60

Leu Pro Ala Gln Trp Ser Ser Met Thr Ser Leu Asp Asn Leu Asn Leu 65 70 75 80

His Asp Thr Ala Val Ser Gly Thr Leu Pro Ala Gln Trp Ser Ser Met 85 90 95

Lys Gln Leu Thr Val Leu Asp Leu Glu Gly Thr Lys Val Ser Gly Thr

Leu Pro Ser Glu Trp Ser Gly Met Ala Lys Ala Glu Ala Val Gln Leu 115 120 125

Glu Asn Cys Gly Leu Ser Gly Ser Leu Pro Pro Ser Trp Ser Ala Met 130 140

Pro Lys Leu Arg Ile Val Ser Leu Ser Gly Asn His Phe Cys Gly Cys 145 150 155 160

Val Pro Asp Ser Trp Arg Glu Lys Asp Arg Leu Asp Val Thr Ile Glu 165 170 175

Glu Trp His Met Gly Glu Asp Cys Lys Leu Ala Asn Ala Cys Arg Pro 180 185 190

Thr Ala Ala Pro Gly Thr Thr Thr Asn Pro Pro Thr Thr Gly 195 200 205

Thr Pro Ala Ala Ser Ser Thr Pro Ser Pro Gly Ser Gly Cys Glu Val 210 215 220

Asp Gly Cys Glu Val Cys Glu Gly Asp Ser Ala Ala Arg Cys Ala Arg 225 230 235 240

Cys Arg Glu Gly Tyr Ser Leu Thr Asp Glu Lys Thr Cys Val Ala Asn 245 250 255

His Asp Gly Gly Val Ala Ala Ala Ser Ser Gly Ala Val Ala Ala Ala 260 265 270

Ala Val Trp Ala Ala Val Leu Leu Ser Val Gly Leu Val Ala 275 280 285

<210> 8

<211> 310

<212> PRT

<213> Leishmania amazonensis

<400> 8

Met Gly Asp Val Asp Tyr Thr Gly Thr Leu Pro Glu Met Pro Ala Ser 1 10 15

Val Asp Tyr Lys Asp Val Met Ile Met Ala Leu Asp Phe Gly Ala Met 20 25 30

Gly Gln Gly Leu Ser Gly Thr Leu Pro Pro Ser Trp Ser Ser Leu Thr 35 40 45

Ser Leu Met Ser Leu Trp Ile Glu Lys Ser Glu Lys Val Thr Gly Thr 50 55 60
Page 9

Leu Pro Thr Gln Trp Ser Ser Met Lys Gln Leu Thr Leu Leu His Leu 65 70 75 80 Lys Gly Thr Lys Val Ser Gly Thr Leu Pro Pro Glu Trp Ser Gly Met
85 90 95 Thr Ser Leu Asp Asp Leu Asn Leu His Asp Thr Ala Val Ser Gly Thr 100 105 110 Leu Pro Ala Gln Trp Ser Ser Met Lys Gln Leu Ile Asp Leu 115 120 125 Glu Gly Thr Lys Val Ser Gly Thr Leu Pro Pro Glu Trp Ser Gly Met 130 140 Ala Lys Ala Glu Ala Leu Gln Leu Lys Tyr Cys Asp Leu Ser Gly Ser 145 150 155 160 Leu Pro Pro Ser Trp Ser Ser Met Gln Lys Leu Arg Ile Val Ser Leu 165 170 175 Ser Gly Asn His Phe Cys Gly Cys Val Pro Asp Ser Trp Arg Glu Lys 180 185 190 Asp Arg Leu Asp Val Thr Ile Glu Glu Trp His Met Gly Glu Asp Cys 195 200 Lys Leu Ala Asn Ala Cys Arg Pro Thr Ala Ala Pro Gly Thr Thr Thr 210 220 Thr Asn Pro Pro Thr Thr Thr Gly Thr Pro Ala Ala Ser Ser Thr Pro 225 230 235 240 Ser Pro Gly Ser Gly Cys Glu Val Asp Gly Cys Glu Val Cys Glu Gly 245 250 255 Asp Ser Ala Ala Arg Cys Ala Arg Cys Arg Glu Gly Tyr Ser Leu Thr 260 265 270 Asp Glu Lys Thr Cys Leu Ala Asn His Asp Gly Gly Val Ala Ala Ala 275 280 285 Ser Ser Gly Ala Val Ala Ala Ala Val Trp Ala Ala Val Leu Leu 290 295 300 Ser Val Gly Leu Val Ala 305 310 <210>

Page 10

<211> 307

<212> PRT

<213> Leishmania amazonensis

<400> 9

Met Cys Val Arg Ile Leu Val Cys Ala Ser Thr Arg Val Ala Pro Arg 1 10 15

Phe Ala Ala Arg Leu Arg Cys Gly Cys His Ser Leu Trp Ala Arg Trp 20 25 30

Arg Val Ala Pro Gly Gly Ala Arg Ser Ala Gly Gly Gly Ser Ser Val 35 40 45

Phe Leu Tyr Phe Ser Val Pro Cys Cys Pro Pro Lys Lys Lys Lys 50 55 60

Lys Lys Ile Gly Val Trp Met Gly Asp Val Asp Tyr Thr Gly Thr Leu 65 70 75 80

Pro Glu Met Pro Ala Ser Val Asp Tyr Lys Asp Val Met Ile Thr Glu 85 90 95

Leu Asn Phe Gly Ala Met Gly Gln Gly Leu Ser Gly Thr Leu Pro Pro 100 105 110

Ser Trp Ser Ser Met Lys Gln Leu Ile Asp Leu Asp Leu Glu Gly Thr 115 120 125

Lys Val Ser Gly Thr Leu Pro Pro Glu Trp Ser Gly Met Ala Lys Ala 130 135 140

Glu Ala Leu Gln Leu Lys Tyr Cys Asp Leu Ser Gly Ser Leu Pro Pro 145 150 155 160

Ser Trp Ser Ser Met Gln Lys Leu Arg Ile Val Ser Leu Ser Gly Asn 165 170 175

His Phe Cys Gly Cys Val Pro Asp Ser Trp Arg Glu Lys Asp Arg Leu 180 185 190

Asp Val Thr Ile Glu Glu Trp His Met Gly Glu Asp Cys Lys Leu Ala 195 200 205

Asn Ala Cys Arg Pro Thr Ala Ala Pro Gly Thr Thr Thr Asn Pro 210 215 220

Pro Thr Thr Gly Thr Pro Ala Ala Ser Ser Thr Pro Ser Pro Gly 235 240

Page 11

Ser Gly Cys Glu Val Asp Gly Cys Glu Val Cys Glu Gly Asp Ser Ala
245
250
255

Ala Arg Cys Ala Arg Cys Arg Glu Gly Tyr Ser Leu Thr Asp Glu Lys
260 265 270

Thr Cys Leu Ala Asn His Asp Gly Gly Val Ala Ala Ala Ser Ser Gly 275 280 285

Ala Val Ala Ala Ala Val Trp Ala Ala Val Leu Leu Ser Val Gly 290 295 300

Leu Val Ala 305

<210> 10

<211> 310

<212> PRT

<213> Leishmania amazonensis

<400> 10

Met Gly Asp Val Asp Tyr Thr Gly Thr Leu Pro Glu Met Pro Ala Ser 1 5 10 15

Val Asp Tyr Lys Asp Val Met Ile Thr Glu Leu Asn Phe Ser Ala Met 20 25 30

Gly Gln Gly Leu Ser Gly Thr Leu Pro Pro Ser Trp Ser Ser Leu Thr 35 40 45

Ser Leu Ile Ser Leu Cys Ile Glu Lys Ser Glu Lys Val Thr Gly Thr 50 60

Leu Pro Ala Gln Trp Ser Ser Met Thr Ser Leu Asp Asn Leu Asn Leu 65 70 75 80

His Asp Thr Ala Val Ser Gly Thr Leu Pro Pro Glu Trp Ser Gly Met 85 90 95

Thr Ser Leu Asp Asp Leu Asn Leu His Asp Thr Ala Val Ser Gly Thr 100 105 110

Leu Pro Ala Gln Trp Ser Ser Met Lys Gln Leu Ile Asp Leu Asp Leu 115 120 125

Glu Gly Thr Lys Val Ser Gly Thr Leu Pro Pro Glu Trp Ser Gly Met 130 135 140

Ala Lys Ala Glu Ala Leu Gln Leu Lys Tyr Cys Asp Leu Ser Gly Ser 145 150 155 160	
Leu Pro Pro Ser Trp Ser Ser Met Gln Lys Leu Arg Ile Val Ser Leu 165 170 175	
Ser Gly Asn His Phe Cys Gly Cys Val Pro Asp Ser Trp Arg Glu Lys 180 185 190	
Asp Arg Leu Asp Val Thr Ile Glu Glu Trp His Met Gly Glu Asp Cys 195 200 205	
Lys Leu Ala Asn Ala Cys Arg Pro Thr Ala Ala Pro Gly Thr Thr Thr 210 215 220	
Thr Asn Pro Pro Thr Thr Gly Thr Pro Ala Ala Ser Ser Thr Pro 225 230 235 240	
Ser Pro Gly Ser Gly Cys Glu Val Asp Gly Cys Glu Val Cys Glu Gly 245 250 255	
Asp Ser Ala Ala Arg Cys Ala Arg Cys Arg Glu Gly Tyr Ser Leu Thr 260 265 270	
Asp Glu Lys Thr Cys Leu Ala Asn His Asp Gly Gly Val Ala Ala Ala 275 280 285	
Ser Ser Gly Ala Val Ala Ala Ala Val Trp Ala Ala Val Leu Leu 290 295 300	
Ser Val Gly Leu Val Ala 305 310	
<210> 11	
<211> 3088	
<212> DNA	
<213> Leishmania amazonensis	
<400> 11 gcgctgctgc cgctggcgct gttgtgtgtg tgctggggcc gcgccacgca cacgcacggt	60
agtgaggggg agccgcagcg accgaccggg cggagcgggc gggcggaggg gggcgctccc	120
gcccgctggt catgctctct gtttcgctgg ccggcctctc tacgccgctg gcgtgggcgg	180
agctccgcgc tgcgtatcgc tcgcccctcg ctgcccctcc ctgcccctcc tcatgtgcac	240
tgctccctcc ctctccctcc ctctacactc ctcgctgtcc cctcggccga cctccacgga	300
cacgcagacg tgcgtgcgca tacacaccac ccctcacctc gctgctgctg ctgtgacagc	360

Page 13

tctacggacc	ctgcccagtc	gctgcgcccc	cgccacccgc	ctctgtcccc	cgcacgaggg	420
tacctacgac	gtgccggcca	ccccgctctg	cccgataagc	tgagctggcg	ctcacgcccg	480
agcaatcccc	tcacggatct	gctgccgcgc	cgcactgctc	ttgaccctgg	ctgcgaatgg	540
cgctgtgcgt	gcgtcggctg	gtgctggcgg	cgaccctcgc	cgctgtggtg	gcgctgctgc	600
tgtgcacgag	cagtgcgccg	gtggcgcgtg	ctgctgtgaa	ggatgacttc	actgctgcgc	660
agcggacgaa	cacgctggcg	gtgctggagg	cgtttgggcg	tgcgatccct	gagcttggga	720
agctgtggaa	gggcgacgac	ttctgctttt	gggagtcggt	cgtgtgcgat	gtgaccgaag	780
tgtacttgtg	ggaaatcggt	gcgacgtata	ccggcacgct	gccggagatg	cctgtggacg	840
tcgactacac	ggccgtcatg	gtcaagcacc	tcgacttttc	ccaaatgggg	ctggggctga	900
gcggaacgct	gccggacagc	tggagcaggc	tgcagggact	gacctcactt	acgttgtcgg	960
gctgcggcgt	gagcggtacg	ctgccccct	cgtggcgctc	gatgaagtct	ttggtgtcgt	1020
tgtggattga	gagttgtgaa	agtgttaccg	gcaagctgcc	gcctgagtgg	agctcgatga	1080
aatcgctgag	agatctccat	ctgcatggcg	cgaaggtttc	cggcacgctg	ccgcctgagt	1140
ggagcacgat	gaaatcgctg	acccttctcg	atctgcagga	cactcaggtt	accggcagtc	1200
tgccgcctga	gtggagctca	atgaaatcca	tgaccattct	cagtctgaat	ggcgcgaagg	1260
tttccggcac	gctgccaccc	cagtggagct	cgatgacatc	gctgagcctt	ctcagtctgg	1320
agggtactca	gctctccggc	acgctaccgc	cccagtggag	tgggatgaca	tcgctggtca	1380
cgctttttct	gcagggtact	caggtctccg	gcactctgcc	gccgcagtgg	agatcgatgt	1440
tgaatgccga	gttcctgcag	ctggagaact	gcgacctgtc	cggctgtttg	cccccgagt	1500
gggctgcgat	gccgaagctg	cgtcatgtcg	aacttaaggg	caaccagttc	gccgggtgtg	1560
tgccggactc	gtgggctcag	aaggccggtc	tcgttgtgga	aatcgaggat	aagcacacgg	1620
gcaacagctg	cattgctggt	gcggactgcg	caacgacgac	cacgaccacc	actgaaccca	1680
cgtccactgc	gagcccaaca	gccacgccta	cctctgcccc	cgagacggag	tgcgaggtgg	1740
atgggtgtga	ggtgtgcgat	ggggactccg	cggcgaggtg	cgccaggtgc	cgtgagggct	1800
acttcctgac	ggacgagagg	acgtgcctgg	tgtaccgcga	tggcggcgtt	gtggccgtgt	1860
cgatcggagc	ggctgctgcc	gctgttgtgt	gcatggctgt	gctgctgagc	gtggggctgg	1920
cggcgtgagg	atgccgctgc	tgtcgcgcgc	aggcggcggc	acccgctgcg	tggcacacga	1980
ctgcgtgctt	gcgtgcagca	ccgcgccctg	cattggcgtg	cgtgtgcgcg	tctgtgtgtg	2040
catggctgct	gacggtgcct	ttcgtcctgc	ctctcgctgc	ctctgcctct	ctccgcgtgt	2100
gaatgctgtg	ggctgtgttt	ggggctctcg	tgcggcgctg	ctgtacggct	gctgcttctt	2160
ctccaccctc	ctctctcgca	tgccggcgag	ggaggggtgg	cacgtgcgcg	tgtgccgctg	2220
cgcttgcgag	tgcgtctgtg	tgtgggcctt	caccacgtgc	tacggtcacg	ccttctcggc	2280
tggccactcg	cggcgctgag	ggcggtgtgc	ccttcccctc	gagcgccgtc	gcactctctt	2340
ccgcgcgcct	gcgcgggctt	cttcgtgcgc	tgtgctcagc Page 14		cacctctttc	2400

ccttttcatt	cgcttgtctt	ctctcttctc	ccccgcact	gcggtctccc	ctcctctgcc	2460
gtgcggtgcg	caggcgggtg	acttgccgtt	gcgtctcccc	ctttcgtgga	gcgctgagcc	2520
gatccccctt	cggcctccct.	cctccctcct	cccgtgggtc	ctgtctgttg	tacatcgtcg	2580
gaccgtctct	tcgtgttgcc	tctccgcacc	ttccgcaaat	ctgcgctcgc	ctgtgccgcc	2640
tctcggactt	tatccttact	gtgattgtat	tctcacggtg	cgtctccgtg	tgtgtgtgtg	2700
ccacgcaccg	cttcttccat	gtgtgtcctt	gcttgctctc	gtctgccccc	cccctctgc	2760
ctcacacatt	ccgtgcgtgt	gtgcatcacc	gttgggcggc	gacatcggtg	cccgtccctg	2820
ccaccctcta	ctccctcatt	ctcttgccac	ttcgtgggcg	gtgcgtgcat	gcatggatgt	2880
atatacacgc	atagaggggt	ggggacgcgg	gggatcctct	agagtcgacc	tgcaggcatg	2940
caagcttggc	gtaatcatgg	tcatagctgt	ttcctgtgtg	aaattgttat	ccgctcacaa	3000
ttccacacaa	catacgagcc	ggaagcataa	agtgtaaagc	ctggggtgcc	taatgagtga	3060
gctaactcac	attaattgcg	ttgcgctc				3088

<210> 12

<211> 464

<212> PRT

<213> Leishmania amazonensis

<400> 12

Met Ala Leu Cys Val Arg Arg Leu Val Leu Ala Ala Thr Leu Ala Ala 1 5 10 15

Val Val Ala Leu Leu Cys Thr Ser Ser Ala Pro Val Ala Arg Ala 20 25 30

Ala Val Lys Asp Asp Phe Thr Ala Ala Gln Arg Thr Asn Thr Leu Ala 35 40 45

Val Leu Glu Ala Phe Gly Arg Ala Ile Pro Glu Leu Gly Lys Leu Trp 50 55 60

Lys Gly Asp Asp Phe Cys Phe Trp Glu Ser Val Val Arg Cys Asp 65 70 75 80

Arg Ser Val Leu Gly Gly Lys Ser Val Arg Arg Ile Pro Ala Arg Cys 85 90 95

Arg Arg Cys Leu Trp Thr Ser Thr Thr Arg Pro Ser Trp Ser Ser Thr 100 105 110

Ser Thr Phe Pro Lys Trp Gly Trp Gly Trp Ala Glu Arg Cys Arg Thr 115 120 125

Ala Gly Ala Gly Cys Arg Asp Trp Pro His Leu Arg Cys Arg Ala Ala 130 135 140 Ala Trp Ala Val Arg Cys Pro Pro Arg Gly Ala Arg Trp Ser Leu Trp 145 150 155 160 Cys Arg Cys Gly Leu Arg Val Val Lys Val Leu Pro Ala Ser Cys Arg 165 170 175 Leu Ser Gly Ala Arg Trp Asn Arg Trp Glu Ile Ser Ile Cys Met Ala 180 185 190 Arg Arg Phe Pro Ala Arg Cys Arg Leu Ser Gly Ala Arg Trp Asn Arg 195 200 205 Trp Pro Phe Ser Ile Cys Arg Thr Leu Arg Leu Pro Ala Val Cys Arg 210 220 Leu Ser Gly Ala Gln Trp Asn Pro Trp Pro Phe Ser Val Trp Met Ala 225 230 235 240 Arg Arg Phe Pro Ala Arg Cys His Pro Ser Gly Ala Arg Trp His Arg 245 250 255 Trp Ala Phe Ser Val Trp Arg Val Leu Ser Ser Pro Ala Arg Tyr Arg 260 265 270 Pro Ser Gly Ser Gly Met Thr Ser Leu Val Thr Leu Phe Leu Gln Gly 275 280 285 Thr Gln Val Ser Gly Thr Leu Pro Pro Gln Trp Arg Ser Met Leu Asn 290 295 300 Ala Glu Phe Leu Gln Leu Glu Asn Cys Asp Leu Ser Gly Cys Leu Pro 305 310 315 320 Pro Glu Trp Ala Ala Met Pro Lys Leu Arg His Val Glu Leu Lys Gly 325 330 335 Asn Gln Phe Ala Gly Cys Val Pro Asp Ser Trp Ala Gln Lys Ala Gly 340 345 350 Leu Val Val Glu Ile Glu Asp Lys His Thr Gly Asn Ser Cys Ile Ala 355 Gly Ala Asp Cys Ala Thr Thr Thr Thr Thr Thr Glu Pro Thr Ser 370 375 380 Thr Ala Ser Pro Thr Ala Thr Pro Thr Ser Ala Pro Glu Thr Glu Cys 385 390 395 Page 16

Glu Val Asp Gly Cys Glu Val Cys Asp Gly Asp Ser Ala Ala Arg Cys Ala Ala Arg Cys Ala Arg Cys Arg Cys Arg Glu Gly Tyr Phe Leu Thr Asp Glu Arg Thr Cys Leu Val Tyr Arg Asp Gly Gly Val Val Val Val Ser Ile Gly Ala Ala Ala Ala Ala Val Val Val Leu Leu Ser Val Gly Leu Ala Ala